

**REMARKS**

Please reconsider the application in view of the above amendments and the following remarks. Applicant thanks the Examiner for carefully considering this application.

**Disposition of Claims**

Claims 1-45, 47-112 are pending in this application, claim 46 has been canceled herein and claim 101 was previously cancelled, claims 1-30 and 73-112 were previously withdrawn and continue to be withdrawn and claims 31-45 and 47-72 are currently under consideration. Claims 31, 32, 33, 49, 50, 61, 62 and 72 are independent. The remaining claims depend, directly or indirectly, from the one of the independent claims.

Claims 31, 32, 33, 45, 46, 48, 49, 50, 61, and 72 have been amended. Support for the amendments to claims 31, 32, 45, 48, 49, 50, 61 and 72 can be found in the each of the claims prior to the amendment and in the corresponding portion of the specification supporting those claims. In the case of claim 46, support for the amendment existed in cancelled claim 47 and the portions of the specification supporting claim 47.

Thus, these amendments are deemed fully supported by the original specification and no new matter has been added.

**Rejection(s) under 35 U.S.C § 112**

The previously amended claims were rejected under 35 USC 112, second paragraph based upon an assertion that the term “like” in a listing of ingredients was unclear. Applicants have amended the claims to specifically identify the ingredient. Also, the indication of “a group” of ingredients has been amended to “the group”.

**Rejection(s) under 35 U.S.C § 102 or 35 U.S.C. § 103 over US Pat. No. 4213956, (Ubbelohde)**

Claims 31-72 stand rejected under 35 U.S.C. § 102 as anticipated by or, in the alternative obvious under 35 U.S.C. § 103 over 4213956 (Ubbelohde.) Claims 31, 32, 33, 45, 46, 48, 49, 50, 61, and 72 have been amended in this reply. The rejection is respectfully traversed for at least the reasons previously asserted regarding portions of the claims not further amended herein and further for at least the following reasons based upon the amendments.

Claims 31, 32, 33, 45, 46, 48, 49, 50, 61, and 72 have been amended in this reply to remove “inorganics” from the feed source Markush groups. Claims 46, 49, 50, 61, and 72 have been amended in this reply to specifically claim in the feed modifier Markush group to remove inorganic fractions from agricultural residues and to claim only the non graphite inorganic material silica. As previously asserted in remarks, in the Declaration by Sid Guar and as reasserted here, those skilled in the art will recognize that the ingredients claim in term of a group “consisting essentially of...” (listing all non-graphite materials) will produce a product that is not non-graphitic unless some of the carbon is graphitized. The process is conducted entirely below the temperature at which graphite formation occurs using non-graphite materials and the resulting product is therefore a carbon alloy that is not formed of graphite and is different from the product of Ubbelohde. Ubbelohde starts with graphite clusters for the express purpose of obtaining sheets of material with well oriented graphite. Upon further graphitization by heating of the composition containing well-oriented graphite, Ubbelohde obtains the desired graphite product. Those skilled in the art will understand this to be clearly different from

the claimed carbon alloy product made according to the process as set forth in the claims. In Ubbelohde both of the materials selected for making the product contain graphite and these are specifically selected for the graphite content and at every stage whether optional or not, the source materials and the product are graphitic. The purpose is to produce a resulting product or material with graphite. Moreover, in Ubbelohde the intended product is aligned graphite. In the part of the process that might be considered optional by the Examiner, elevated temperatures are intended to be employed to obtain more complete graphitization of the already existing graphite material.

The declaration by Sid Gaur that this is different for the reasons stated in the declaration should not be discounted. Moreover, the declaration by Sid Guar includes specific testing information to support the declaration that the product resulting from the process of the claims is not the same as any graphite product of Ubbelode. The declaration of Siddhartha Gaur, PhD, attached hereto (the Gaur Declaration) together with the product testing evidence in the form of a graphical presentation of comparison test data, supported by the Gaur Declaration, clearly indicates that graphite has a distinctly different low reactivity "signature" compared to the high reactivity of samples of different carbon alloy products both made according to variations of the process as claimed. One carbon alloy sample (sample A) made according to one variation within the scope of the claims has a relative reactivity that is double that of graphite and a second carbon alloy sample (sample B) made according to another variation within the scope of the claims has a relative reactivity that is more than 10 times that of graphite. Thus, it is respectfully submitted that distinct differences exist between the graphite containing product of Ubbelohde and the molded carbon alloy as claimed by Applicants.

Ubbelohde does not anticipate Applicants' claimed product and Applicants' claimed product would not have been obvious in view of Ubbelohde. Those skilled in the art will understand these differences. The examiner has provided no evidence to the contrary. The claims are therefore deemed patentable over Ubbelohde for at least these reasons.

**Rejection(s) under 35 U.S.C § 102 or 35 U.S.C. § 103 over US Pat. No. 3867499, (Morgan)**

Claims 31-72 stand rejected under 35 U.S.C. § 102 as anticipated by or, in the alternative, obvious under 35 U.S.C. § 103 over 4213956 (Morgan.) Claims 31, 32, 33, 45, 46, 48, 49, 50, 61, and 72 have been amended in this reply.

Applicants respectfully disagree and hereby traverse the Examiner's assertion that the Examiner sees no difference in Applicants' product, one with a plurality of different hybrid orbital carbon bonding, and the carbon fiber products of Morgan in which all of the source materials (acrylic polymer in a solvent) for making "high modulus carbon and graphite fibers" provides a single  $sp^2$  type of hybrid carbon bonding. The product, made from acrylic polymer fibers, even at intermediate stages, is not by definition a carbon alloy. The acrylic fibers produced as a precursor to the graphite fiber end product in Morgan are not carbon alloy materials. The ultimate end product of Morgan is clearly a graphitic material. (See Gaur Declaration, paragraph 7) Applicants' claims all set forth carbon source materials (and feed modifier materials if any are claimed) that provide more than one type of carbon-carbon bonding. None of the materials in either the feed source group or the feed modifier group is deemed to be a graphite material. The final product of Morgan is further intended to be heated to above about 1800°C to convert the

thin extruded acrylic filaments into graphite. As indicated in the Gaur Declaration and the supporting comparison testing results presented, graphite materials have a different reactivity signature from the carbon alloy products produced according to the claimed invention. Whether at the initial stages or after the heating stage, the resulting products of Morgan will have a single type of  $sp^2$  hybrid orbital carbon bonding and are therefore not carbon alloys as claimed. Moreover, the Morgan product is not a molded product as in amended claims 32, 33, 49, 50, 61, 62, or 72. Thus, it is respectfully submitted that distinct differences exist between the product of Morgan and the molded carbon alloy as claimed by Applicants. The dimensions claimed in some of the claims are to further demonstrate that the fibers of Morgan do not anticipate the claimed molded product and Applicants' claimed product would not have been obvious in view of Morgan.

In view of the above, Morgan fails to show or suggest the present invention as recited in the claims as amended. Thus, the independent claims as amended are patentable over Morgan. Dependent claims are allowable for at least the same reasons. With regard specifically to claims 51, 61, 65, 66, 67, 68, 69, 70, and 71 specific dimensions are included in the claims that further differentiate the claimed invention from the extruded filaments of Morgan. It is respectfully submitted that the finding in the case cited by the examiner are inapplicable to the present case where the nature of the dimensions, in this case sizes that are clearly not extruded fibers, make it clear that a different product is made by the claimed process. Accordingly, reconsideration, withdrawal of this rejection and allowance of claims 31-72 are respectfully requested.

**Rejection(s) under 35 U.S.C § 102 or 35 U.S.C. § 103 over Tither et al., article, (Tither)**

Claims 31-72 stand rejected under 35 U.S.C. § 102 as anticipated by or, in the alternative, obvious under 35 U.S.C. § 103 over 4213956 (Tither.) Claims 31, 32, 33, 45, 46, 48, 49, 50, 61, and 72 have been amended in this reply.

For at least the reasons previously stated and for at least the following reasons, this rejection is respectfully traversed.

In Tither the resulting product was mainly graphitic with only some sp<sup>3</sup> bonding present. The intent was to obtain a thin film deposition of graphite (sp<sup>2</sup>) and the resulting film had only a small part of sp<sup>3</sup> bonding present in the film. Initially, it is respectfully submitted that this is not a carbon alloy according to Applicant's claim and on that basis should not be considered as the same product claimed by Applicants. (See Gaur Declaration, paragraph 8) Further, although Tither describes vapor deposition onto polished substrate material, where the substrate surface might be at a temperature of 500°C, that is only a reference to the temperature of the substrate, and there is no indication of the actual vaporization temperature at which graphite vapor is produced for deposition onto the substrate. It is respectfully submitted that because the melting and vaporization temperatures of carbon would be much higher than 1300°C and the graphite formation temperature is higher than 1300°C, the vaporization portion of the Tither process produces a graphite product that is different from the product of the claimed invention. The claimed invention process uses feed materials in a group that are known not to include graphite the reference to inorganic feed materials has been removed by the amendment and inorganic fraction from agriculture material has been removed and

replaced with only silica, so that it is clear it is not graphite. The claimed process is conducted at temperatures at or below 1300°C, i.e., below the graphite formation temperatures, such that Applicants' product made according to the claims is not graphitic. The Tither product is intentionally graphitic with only impurities of other carbon materials. The products are different.

The Examiner asserts that a deposited film can be considered a molded product having three dimensions that is the same as Applicants' claimed product. Applicants respectfully disagree. The vapor deposition onto a polished substrate is not the same as the claimed molded product. Moreover, reference in earlier actions to rolling together of thin sheets of graphite to try to align the graphitic plates, does not support the assertion that thin film deposition is the same as the molded shaped product as claimed by Applicants. The examiner has not provided an affidavit of the Examiner's own personal knowledge under 37 CFR 104(d)(2) that vapor deposition of a layer of graphite can be considered to be a molded product and therefore such assertion should be considered as withdrawn. According to Applicants' claim 31, the claimed product is characterized as "a molded carbon alloy." The Tither product is a deposited film on a polished substrate; it is not under any reasonable interpretation of the word "molded" a molded product. Moreover, the claimed product is made by a process entirely at temperatures only up to 1300°C, thereby eliminating the formation of graphite, and a thin film primarily of graphite is not the same product as claimed by Applicants. With regard specifically to claims with specific dimensions, these claims further demonstrate that the nature of the molded product claimed is entirely different from the thin film of Tither and the ranges of dimensions claimed differentiate the claimed invention by the nature of the product, not

merely by optimization of the specific dimensions.

In view of the above, Tither fails to show or suggest the present invention as recited in the claims as amended. Thus, the claims as amended are patentable over Tither. Dependent claims are allowable for at least the reasons indicated and those previously asserted. Accordingly, reconsideration and withdrawal of this rejection is respectfully requested.

#### Additional Remarks

The references that all include graphite products are respectfully different from applicants' product according to the claims as amended that initially starts with feed and feed modifiers that consist essentially of non-graphite materials. As discussed more fully above, the amended claims do not claim "inorganics" in the initial mix and rather specifies certain materials such as silica that also consist essentially of materials that are not graphite materials. The claimed product by process makes clear that graphite is not formed. The applicant has merely submitted the art cited in a "related" case and does not make any representation as to its relevance or its validity as prior art. It is respectfully submitted that the purpose of the examiner's tangential mention of the names of others that might be working in a particular field is not understood. It is respectfully submitted that the examiner's assertions regarding applicant's prior arguments as to the effect of using "comprising" steps in the preamble and "consisting essentially of" in the ingredient limitations is at odds with the cited Federal Circuit case law in *Dippin' Dots v. Mosey*, 476 F.3d 1337 (Fed. Cir. 2007).

#### Summary

Applicants believe this reply is fully responsive to all outstanding issues and

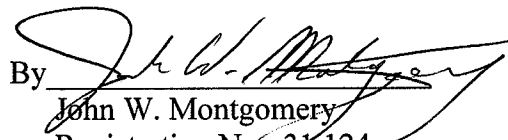


places this application in condition for allowance. If this belief is incorrect, or other issues arise, the Examiner is encouraged to contact the undersigned or his associates at the telephone number listed below. The fee for filing an extension is submitted herewith by credit card payment authorization. In the event the fee is inadequate or otherwise deficient please consider this a request for two month extension and charge the required large entity extension fee to Deposit Account 50-0591 (Reference Number 17133/002002).

Applicant believes this reply is fully responsive to all outstanding issues and places this application in condition for allowance. If this belief is incorrect, or other issues arise, the Examiner is encouraged to contact the undersigned or his associates at the telephone number listed below. Please apply any charges not covered, or any credits, to Deposit Account 50-0591 (Reference Number 17133/002002).

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